

**Date:** January 21, 2015

To: CollegeCounts, Alabama 529 Savings Program

From: Pension Consulting Alliance, Inc. (PCA)

CC: Eric White, CFA | Kay Ceserani | Sean Copus - PCA

RE: CollegeCounts "Watch" Status Update

## **Summary**

PCA has reviewed the CollegeCounts Direct and Advisor Plans as of December 31, 2014. At the end of the period, three funds remain on "Watch" status and no new funds qualify for "Watch" status under the Monitoring Procedures and Criteria. At this time, PCA recommends the three funds identified in the table below remain on "Watch" status. Each of these funds is discussed in more detail on the following pages.

## Performance of Funds on "Watch" Status

As of 12/31/2014

Funds on Watch Status	Plan Assets (mil)	Board Action Date	Qualifies for Watch	Watch Status Start Date	No. Months Since Watch Began	Excess Perf. Since Watch Began
Direct Plan						
Vanguard Inter-term Bond Index	\$0.8	5/6/14	No	4/1/14	9	0.2%*
Advisor Plan						
Voya Global Real Estate	\$26.5	2/13/13	Medium-term	1/1/13	24	-1.6%
Neuberger Berman Intl Select	\$78.4	11/5/14	No	9/30/14	3	3.7%

<sup>\*</sup> Excess performance for passive investments measured by tracking error

The Vanguard Intermediate-term Bond Index fund's tracking error has been within the allowable range during the last three rolling 12-month periods measured. If this trend continues, the fund will be a candidate to be released from "Watch" status at the next review.

The Voya Global Real Estate fund's medium-term results continue to be negatively impacted from underperformance experienced prior to the fund being added to the program in October 2012, while short-term results continue to be in the positive/acceptable range and are above median versus peers. PCA recommends this fund remain on "Watch" status.

During the quarter the Neuberger Berman International Select fund outperformed its benchmark by 2.0% resulting in the fund being above the "Watch" criteria thresholds. If this trend continues, the fund will be a candidate to be released from "Watch" status at the next review.



## Funds Currently on "Watch" Status

## Vanguard Intermediate-term Bond Index Fund (Direct Plan)

This fund is an individual option and is also included in the target portfolios.

## Investment Role in Program

The fund is designed to provide investors with a low-cost method of consistently capturing the return of the intermediate-term US bond market, as defined by the Lehman Brothers Index. Because the fund is passively managed, investors forgo both the risks and potential returns of an actively managed fund.

## History and Organizational Structure

Vanguard was launched in 1975, but their heritage extends back to 1929 with the inception of the Wellington fund, one of the first balanced mutual funds and one of the longest-operating funds of any kind.

The Vanguard Group is a wholly owned subsidiary of the Vanguard funds. The Vanguard Group is the only mutual fund organization that is owned by its member funds. This unique corporate structure differentiates them from their competitors in the mutual fund industry, as in the typical mutual fund complex, the funds are controlled largely by an external management company. This company is typically owned by an individual, partnership, or investors who purchase the company's publicly traded shares.

### Investment Team

This fund is currently managed by Joshua Barrickman, CFA. Mr. Barrickman has worked in investment management with Vanguard since 1999, managed investment portfolios since 2005, and co-managed the Intermediate-term Bond Index fund since April 2008. Kenneth Volpert was responsible for the fund from 1994 through April 2010.

### Investment Philosophy and Approach

The fund employs an indexing investment approach designed to track the performance of the Barclays US 5-10 Year Government/Credit Float Adjusted Bond Index. This index includes all medium and larger issues of US government, investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities between 5 and 10 years and are publicly issued. The fund invests by sampling the index, meaning that it holds a range of securities that, in the aggregate, approximate the full index in terms of key risk factors and other characteristics. All of the fund's investments will be selected through the sampling process, and at least 80% of the fund's assets will be invested in bonds held in the index. The fund maintains a dollar-weighted average maturity consistent with that of the index, which ranges between 5 and 10 years.



The fund has adopted certain limitations on its investment practice. To remain a diversified mutual fund, the fund cannot:

- a) Invest more than 5% of its assets in the securities of any single issuer except obligations of the United States Government.
- b) Purchase more than 5% of the voting securities of any issuer.
- c) Borrow money except from banks for temporary or emergency purposes, and then only in an amount not in excess of 15% of its total assets.
- d) Pledge, mortgage or hypothecate its assets to an extent greater than 5% of the value of its total assets.
- e) Invest more than 25% of its assets in any one industry.

#### *Performance*

The Vanguard Intermediate-term Bond Index fund's tracking error finished the quarter with a 12-month tracking error of 0.37% which is below the 0.40% short-term probationary performance band. After showing steady improvements over the past few quarters, the trend continued over the past three months and the fund is now in Positive territory according to both the Short- and Medium-term Performance Criteria.

#### Recommendation

PCA recommends that the Vanguard Intermediate-term Bond Index Fund remain on "Watch" status to ensure that recent performance improvements are maintained.



## Voya Global Real Estate Fund (Advisor Plan)

This fund is an individual option and is also included in the target portfolios.

## Investment Role in Program

The fund seeks to provide investors with high total return, consisting of capital appreciation and current income through the investment in REIT securities of companies of any market capitalization in a number of different countries, including the US. The Fund may also invest in debt securities of US or foreign issuers, including up to 10% of its assets in high risk and high-yield, non-investment-grade instruments commonly known as "junk bonds."

## History and Organizational Structure

This fund is distributed by Voya Funds and sub-advised by CBRE Clarion Securities.

Voya Financial, Inc., a publicly traded company (NYSE: VOYA), is composed of retirement, investment, and insurance companies serving the financial needs of individual and institutional customers in the US. The businesses that make up Voya Financial today were formed through a series of acquisitions by Amsterdam-based ING Groep N.V. dating back to the 1970s.

CBRE Clarion Securities, LLC ("CBRE Clarion") is majority owned by CBRE Group, Inc. and minority owned by employees on its own senior management team. Senior management of CBRE Clarion Securities has an equity stake in the firm of approximately 23%. CBRE Clarion is a distinct business unit of CBRE Investors with its own distinct control and governance structure. CBRE Clarion and its predecessors have been managing investments in real estate securities for institutional investors since 1984.

## Investment Team

This fund is team managed by Steven Burton, CFA, T. Ritson Ferguson, CFA, and Joseph Smith, CFA. Mr. Burton and Mr. Ferguson have managed the fund since November 2001, while Joseph Smith joined the team in February 2007 after Kenneth Campbell left the team.

CBRE Clarion stresses a collegial team approach to investment decision-making within both the top-down and bottom up component of the investment process. The investment management team is organized by region (Americas, Europe, and Asia-Pacific) in an effort to ensure fast and efficient investment decision making.

Top-down regional allocation decisions, which are drawn from the conclusions and regional allocation bands established during the quarterly Global Investment Policy Committee (GIPC) meetings, are made by the global portfolio management team which includes Co-Chief Investment Officers, T. Ritson Ferguson, Steven Burton, and Joseph Smith and senior regional portfolio managers, Chris Reich, W. Stevens Carroll and Jeremy Anagnos. Asset allocation decisions are monitored on a regular basis and while they are made with a 12-18 month view the global PM team may adjust the regional overweight/underweight decisions at any time based on their view of the market environment.



Bottom-up security selection is the responsibility of the portfolio management team assigned to each region. Each regional team is staffed by two portfolio managers empowered to make investment decisions within their respective regions. Portfolio position weights are established following consideration of analyst's level of conviction, RVA scores, total return potential, liquidity, size and potential tracking error. Aggregate positions by region and sector are monitored to comply with established sector and regional asset allocation bands and portfolio risk guidelines.

## Investment Philosophy and Approach

CBRE Clarion uses a multi-step investment process for constructing portfolios that combines topdown, research driven portfolio design with bottom-up securities selection based on intensive fundamental company analysis. Finally, portfolio construction and risk mitigation guidelines are employed to arrive at a diversified portfolio of global real estate securities.

Allocation decisions at country/region and sector level are made with reference to macroeconomic and capital market analysis, as well as an appraisal of listed, direct and unlisted real estate markets. Their GIPC meets regularly to exchange views and table analysis of developments. The GIPC includes all CBRE Clarion global portfolio managers. The GIPC evaluates:

- Macro-economic and capital market trends by region
- Public property company valuations and performance trends by region
- Private market research review and trend analysis by region
- Supply and demand drivers underlying commercial property markets by country and property type

The meeting culminates in the production of allocation band recommendations for regions, countries and property types, for review and implementation within the portfolio.

CBRE Clarian's security selection process is driven by their proprietary valuation system that identifies investments with superior current income and growth potential relative to their peers. It examines both qualitative and quantitative factors including: value and property, capital structure, and management and strategy.

As an active manager, CBRE Clarion seeks to outperform its benchmark by taking meaningful positions at the company level, as well as property type and geography, seeking to identify the best opportunities to add value. Such an approach gives rise to investment risks, which CBRE Clarion mitigates by generally:

- Holding a sufficient number of securities;
- Limiting investment concentration in individual securities;

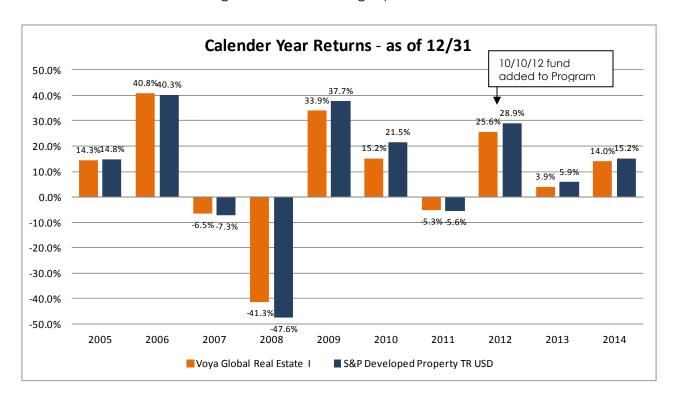


- Monitoring average weekly and monthly trading volume and scaling positions accordingly to maintain relatively liquid positions (and by excluding any company below the market capitalization minimum of \$100 million);
- Observing tracking error tolerance bands;
- Staying within 5% from benchmark weight for single position;
- Following country weights guidelines: approximately +/- 10% from benchmark weight

Portfolio construction parameters mitigate risk. They adhere to certain limits on variance for single position and country weights as described above. Adherence to these limits is monitored by the portfolio management team and reviewed monthly by their operations team to ensure compliance. Position sizes are determined by the portfolio managers with consideration of relative value/total return potential, liquidity and the limits described above.

#### Performance

The Voya Global Real Estate fund's medium-term performance remains in the Monitor range at the close of 2014. It is important to note, that the fund has only been in the program since October 2012. Significant underperformance experienced in calendar years 2009, 2010, and 2012 continue to be a material drag on the fund's rolling 3-year results.



After recently moving into the Positive range, short-term performance dropped back into the Acceptable range during the most recent quarter. During the fund's 2-year "Watch" period, performance has lagged its benchmark, the S&P Developed Property Index, by -1.6%. In the shorter-term, the fund's performance has been flat as it continues to trail the benchmark by (20)



basis points over the latest 1-year period. In terms of peer rankings, the fund continues to beat the median in its peer group as it is ranked in the 35<sup>th</sup> percentile over the 1-year period, and ranked in the 44<sup>th</sup> percentile since "Watch" began. The fund continues to provide participants in the Program with solid, diversified, global real estate exposure, and PCA remains confident in the fund's management team and investment process.

### Recommendation

PCA, therefore, recommends that the Voya Global Real Estate Fund remain on "Watch" status.



## Neuberger Berman International Select Fund (Advisor Plan)

This fund is an individual option and is included in the target portfolios.

## Investment Role in Program

The fund invests mainly in common stocks of foreign companies, including companies in developed and emerging markets. The fund defines a foreign company as one that is organized outside of the US and conducts the majority of its business abroad. Under normal circumstances, at least 80% of the fund's net assets, plus the amount of any borrowings for investment purposes, will be invested in companies with a market capitalization greater than \$2.5 billion at the time of purchase.

## History and Organizational Structure

Neuberger Berman is an independent, private partnership that was founded in 1939 by Roy Neuberger. In 1950, Neuberger Berman became one of the first firms to offer a no-load mutual fund to individual investors, and their mutual fund family has grown alongside the private client business. In 1971, they launched a portfolio for institutions, marking their formal entry into the institutional investment business.

#### Investment Team

This fund has been managed by Benjamin Segal since August 2006. Mr. Segal, CFA, joined Neuberger in 1998.

Mr. Segal is responsible for making all investment decisions. With regard to the sources of potential investments, both Mr. Segal and the team's research analysts generate investment ideas. Mr. Segal himself serves as analyst, taking part in company management meetings, assisting with modeling, playing devil's advocate to research decisions.

The investment team may leverage the support of Neuberger Berman's Global Equity Research Department, led by Timothy Creedon, which is located at their New York City Headquarters.

## Investment Philosophy and Approach

The investment team believes that many of the best investment opportunities in the international markets can be uncovered through disciplined, fundamental bottom-up research that focuses on high-quality companies selling at a reasonable price. Neuberger invests in specialty companies in the mid-large market capitalization spectrum within the developed markets and selectively will invest in emerging market stocks when risk/reward fundamentals are favorable. At the same time, the team understands the importance of systematic risk management, and seeks to build portfolios with a compelling combination of risk and potential reward.

The team narrows their universe of potential investments by utilizing internally developed screens to identify firms greater than \$2.5 billion in market capitalization that have financial attributes that are indicators of future share price out-performance. This step narrows the list to around 2000.



The next step is to identify which of these 500 companies they believe may be able to continue or improve upon their track record of growth and profitability. This strategic analysis is the core of the team's investment process and is driven primarily by the team's global sector research analysts, and where applicable, in conjunction with Neuberger Berman's Global Equity Research Department.

This step of the process entails a detailed assessment of a company's strategy, the quality of its management team, as well as its commitment to driving shareholder value.

This evaluation process further trims the universe to a list of 150-200 prime investment ideas. These are companies that they follow particularly closely, seeking to identify points at which the stock prices look attractive (for investment), or extended (in order to reduce exposure).

Next, the team uses proprietary models to evaluate a company's financial statements, prepares a discounted cash flow analysis and builds peer group comparisons. This work enables the team to define the explicit price levels at which they become buyers or sellers of a particular stock. As stock prices fall below purchase targets, the team will add to positions, and as prices rise towards their sell targets, they reduce their exposure. Financial analysis results in a portfolio of 60 to 90 "potential outperformers." Additionally, the team seeks at least 50% upside over 3 years.

### Performance

Since being placed on "Watch" status last quarter, the Neuberger Berman International Select fund has outperformed its benchmark, the MSCI EAFE Index, by 3.7%. After a string of poor monthly results during mid-2014 the fund has consistently outperformed its benchmark to close out the year with a 12-month excess return of 2.0% and a top quartile ranking in its Foreign Large Blend category. The recent string of outperformance now places the fund in the Positive range according to the Short-term Performance Criteria, and moved the fund into the Acceptable range according to the Medium-term Performance Criteria. Outperformance over the past year can mostly be attributed to the fund's overweighting of North America, as well as strong stock selection within Europe.

#### Recommendation

PCA recommends that the Neuberger Berman International Select Fund remain on "Watch" status to see if recent performance trends persist.



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## **COLLEGECOUNTS 529 FUND**

INVESTMENT MONITORING STATUS REPORT



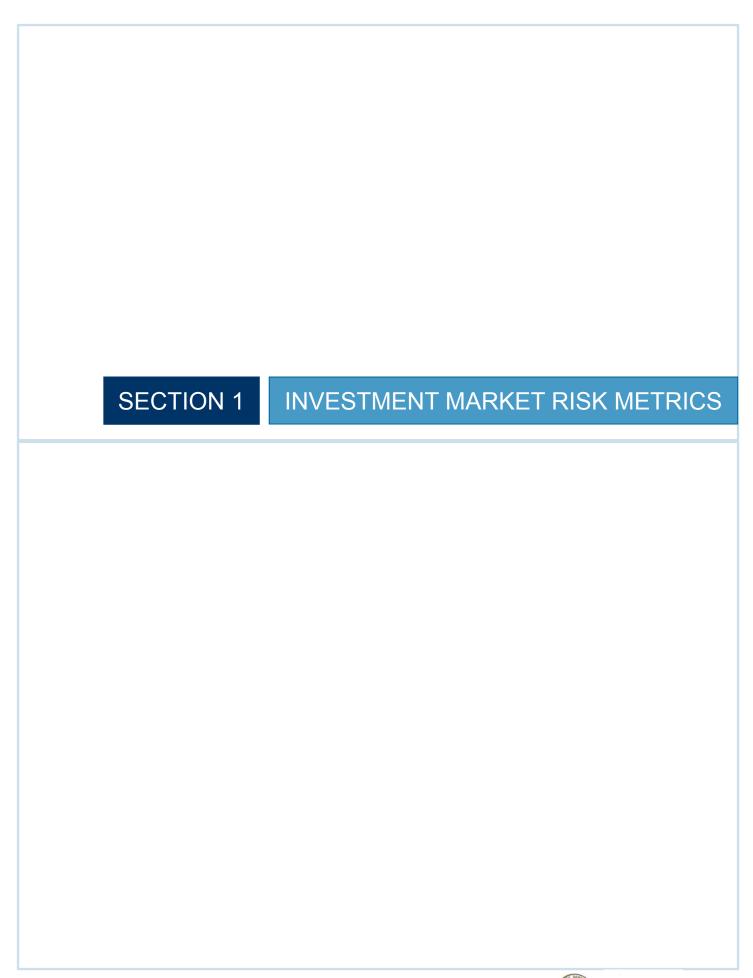
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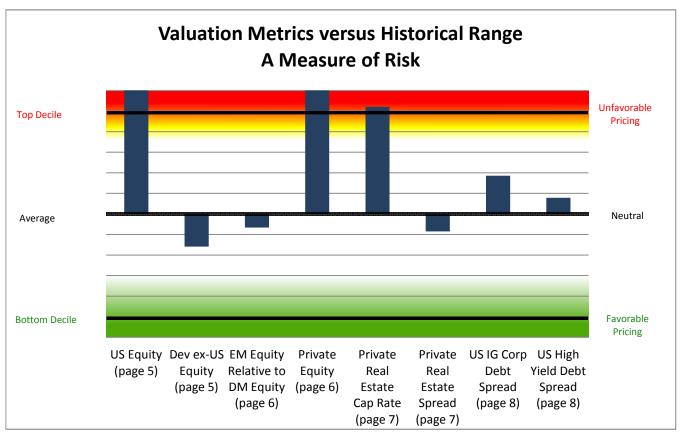
## **Takeaways**

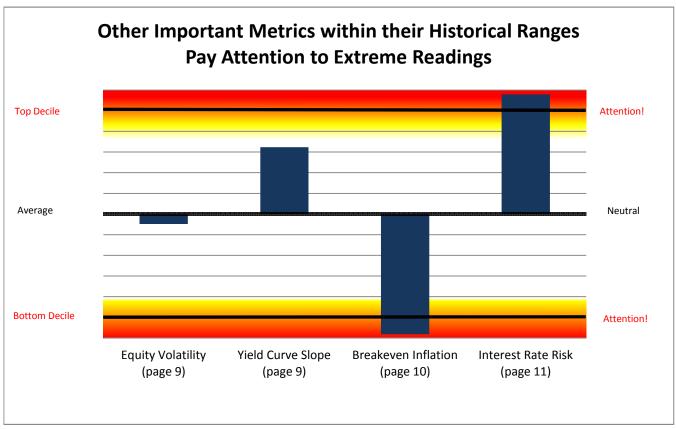
- Commodity prices remain in freefall (oil <\$50), hitting lowest inflation adjusted levels since index inception. Oil prices declined almost 30% in a month. (page 10)
- Breakeven inflation continued to drop, declining to a reading of below 1.7% for the first time since the Euro crisis and bailouts of 2010. (page 10)
- The yield on the 10-year Treasury declined towards 2% after month end.
- The yield curve slope flattened (bearish), as long-term rates declined.
- The PCA Market Sentiment Indicator "PMSI" remained <u>neutral</u> in December, after turning neutral in November. The trend is down. (page 4).
  - This change was driven by year-over-year credit spread widening (page 8)
  - While, year-over-year equity returns remain comfortably positive
  - Conflicting signals result in a grey (inconclusive / neutral) sentiment reading
- Commodity price declines, low inflation expectations, and falling interest rates point to global growth concerns, particularly outside the United States.
- U.S. stock markets rose. Stock markets outside the U.S. broadly declined.
- Valuations in U.S. equity and private equity remain at top decile levels.
- U.S. equity volatility (VIX) rose, but only to 19, near long-term average levels.

<sup>&</sup>lt;sup>1</sup>See Appendix for the rationale for selection and calculation methodology used for the risk metrics.



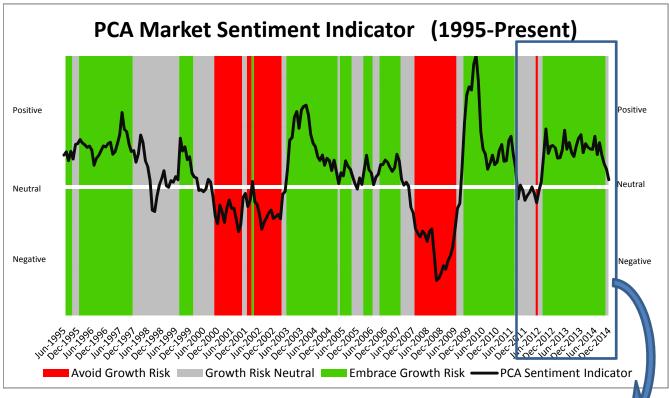
## **Risk Overview**

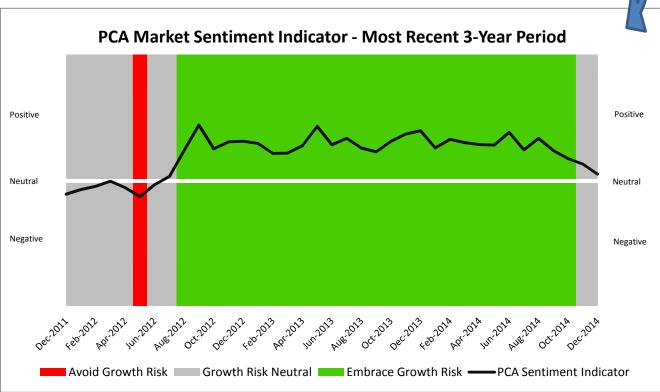






## **Market Sentiment**





Bond Spread Momentum Trailing-Twelve Months Equity Return Momentum Trailing-Twelve Months

Agreement Between Bond Spread and Equity Spread Momentum Measures?

Negative Positive Disagree

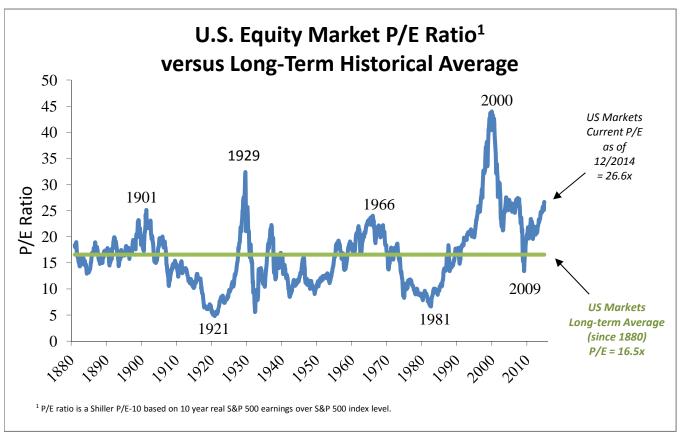


Growth Risk Visibility (Current Overall Sentiment)

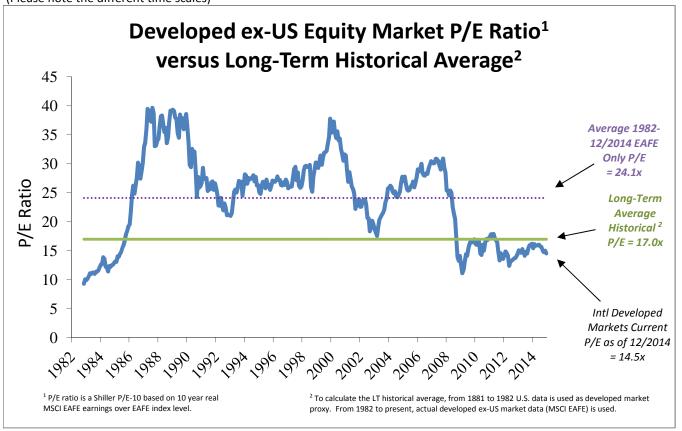
Neutral



## **Developed Public Equity Markets**

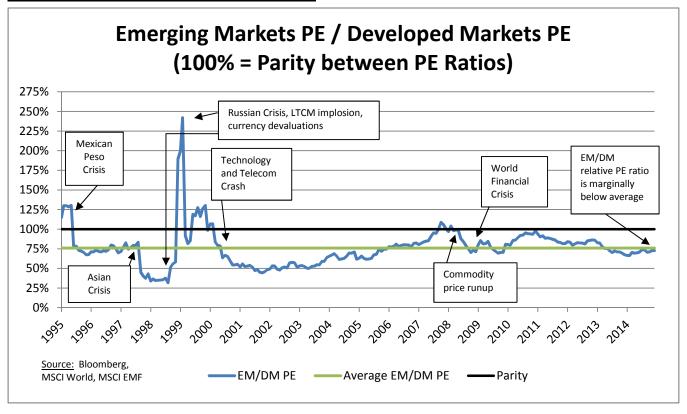


(Please note the different time scales)



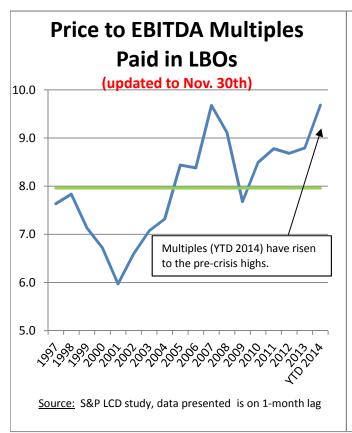


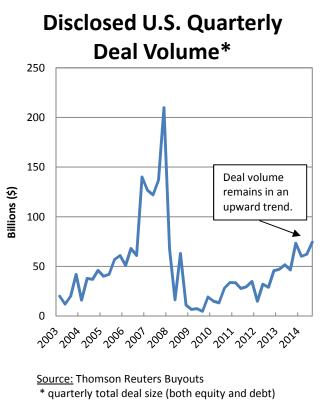
## **Emerging Market Public Equity Markets**



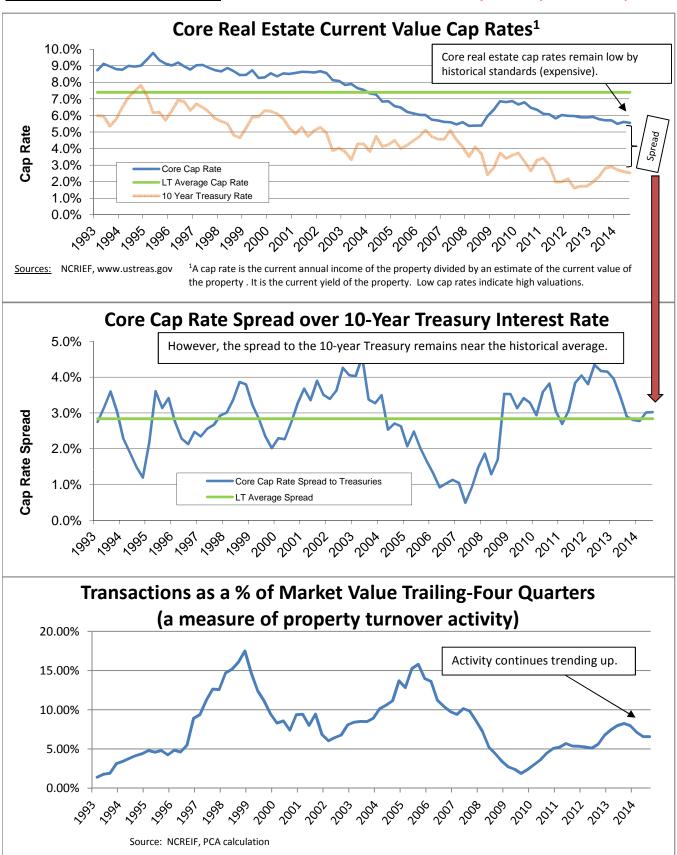
## **US Private Equity**

## Quarterly Data, Updated to Sept. 30th

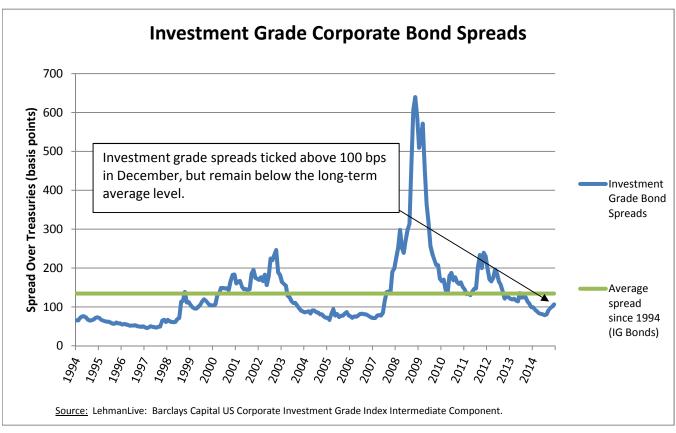


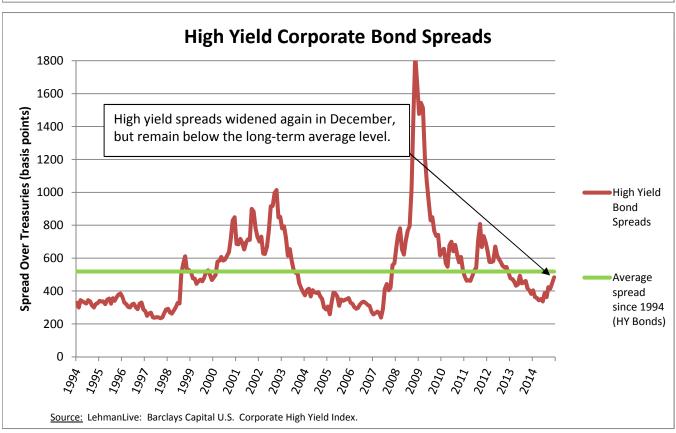






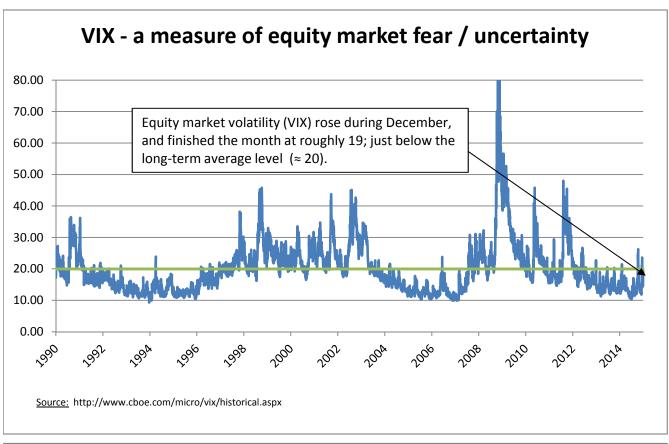
## **Credit Markets US Fixed Income**

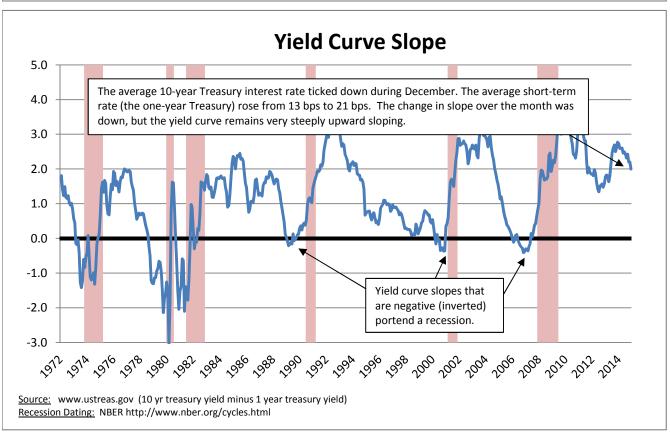






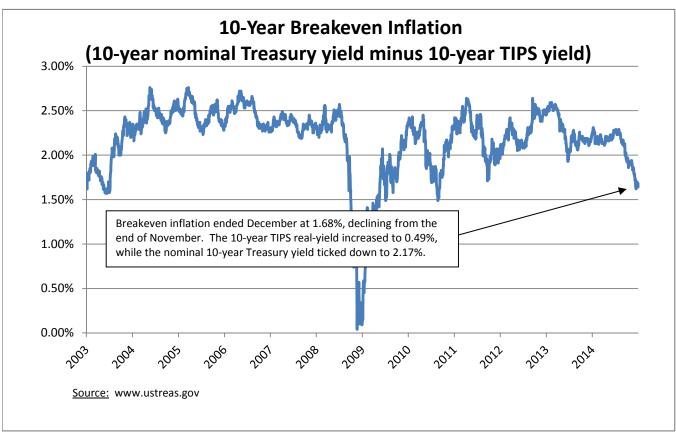
## **Other Market Metrics**

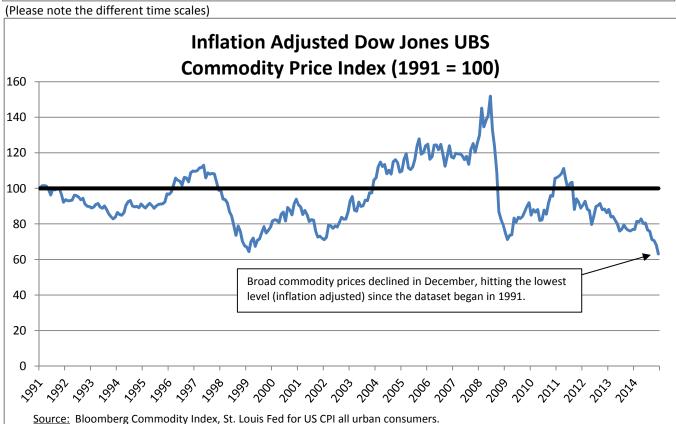






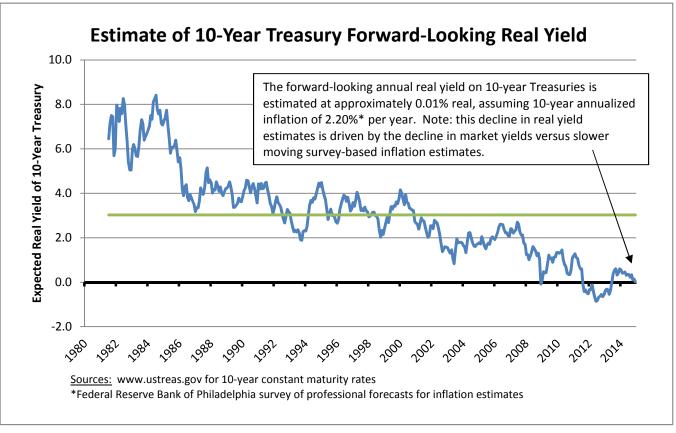
## **Measures of Inflation Expectations**

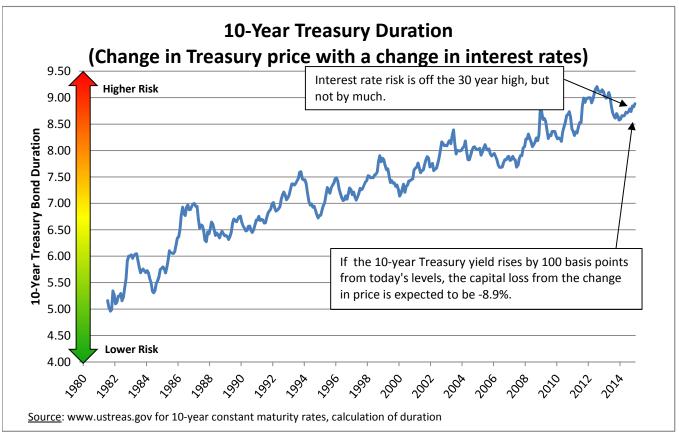






## Measures of U.S. Treasury Interest Rate Risk









## METRIC DESCRIPTION. RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

## **US Equity Markets:**

Metric: P/E ratio = Price / "Normalized" earnings for the S&P 500 Index

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published quarterly earnings. The price=P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the S&P 500 index). Equity markets are very volatile. Prices fluctuate significantly during normal times and extremely during periods of market stress or euphoria. Therefore, developing a measure of earnings power (E) which is stable is vitally important, if the measure is to provide insight. While equity prices can and do double, or get cut in half, real earnings power does not change nearly as much. Therefore, we have selected a well known measure of real, stable earnings power developed by Yale Professor Robert Shiller known as the Shiller E-10. The calculation of E-10 is simply the average real annual earnings over the past 10 years. Over 10 years, the earnings shenanigans and boom and bust levels of earnings tend to even out (and often times get restated). Therefore, this earnings statistic gives a reasonably stable, slow-to-change estimate of average real earnings power for Professor Shiller's data and calculation of the E-10 are available on his website at the index. http://www.econ.yale.edu/~shiller/data.htm. We have used his data as the base for our calculations. Details of the theoretical justification behind the measure can be found in his book Irrational Exuberance [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005].

## **Developed Equity Markets Excluding the US:**

Metric: P/E ratio = Price / "Normalized" earnings for the MSCI EAFE Index

To represent the price of non-US developed equity markets, we have chosen the MSCI EAFE index. This index has the longest published history of price for non-US developed equities. The price=P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the MSCI EAFE index). The price level of this index is available starting in December 1969. Again, for the reasons described above, we elected to use the Shiller E-10 as our measure of earnings (E). Since 12/1972, a monthly price earnings ratio is available from MSCI. Using this quoted ratio, we have backed out the implied trailing-twelve month earnings of the EAFE index for each month from 12/1972 to the present. These annualized earnings are then inflation adjusted using CPI-U to represent real earnings in US dollar terms for each time period. The Shiller E-10 for the EAFE index (10 year average real earnings) is calculated in the same manner as detailed above.

However, we do not believe that the pricing and earnings history of the EAFE markets are long enough to be a reliable representation of pricing history for developed market equities outside of the US. Therefore, in constructing the Long-Term Average Historical P/E for developed ex-US equities for comparison purposes, we have elected to use the US equity market as a developed market proxy, from 1881 to 1982. This lowers the Long-Term Average Historical P/E considerably. We believe this methodology provides a more realistic historical comparison for a market with a relatively short history.



## METRIC DESCRIPTION. RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

## **Emerging Market Equity Markets:**

Metric: Ratio of Emerging Market P/E Ratio to Developed Market P/E Ratio

To represent the Emerging Markets P/E Ratio, we have chosen the MSCI Emerging Market Free Index, which has P/E data back to January 1995 on Bloomberg. To represent the Developed Markets PE Ratio, we have chosen the MSCI World Index, which also has data back to January 1995 on Bloomberg. Although there are issues with published, single time period P/E ratios, in which the denominator effect can cause large movements, we feel that the information contained in such movements will alert investors to market activity that they will want to interpret.

#### **US Private Equity Markets:**

Metrics: S&P LCD Average EBITDA Multiples Paid in LBOs and US Quarterly Deal Volume

The Average Purchase Price to EBITDA multiples paid in LBOs is published quarterly by S&P in their LCD study. This is the total price paid (both equity and debt) over the trailing-twelve month EBITDA (earnings before interest, taxes, depreciation and amortization) as calculated by S&P LCD. This is the relevant, high-level pricing metric that private equity managers use in assessing deals. Data is published monthly.

US quarterly deal volume for private equity is the total deal volume in \$ billions (both equity and debt) reported in the quarter by Thomson Reuters Buyouts. This metric gives a measure of the level of activity in the market. Data is published quarterly.

#### **U.S Private Real Estate Markets:**

Metrics: US Cap Rates, Cap Rate Spreads, and Transactions as a % of Market Value

Real estate cap rates are a measure of the price paid in the market to acquire properties versus their annualized income generation before financing costs (NOI=net operating income). The data, published by NCREIF, describes completed and leased properties (core) on an unleveraged basis. We chose to use current value cap rates. These are capitalization rates from properties that were revalued during the quarter. This data relies on estimates of value and therefore tends to be lagging (estimated prices are slower to rise and slower to fall than transaction prices). The data is published quarterly.

Spreads between the cap rate (described above) and the 10-year nominal Treasury yield, indicate a measure of the cost of properties versus a current measure of the cost of financing.

Transactions as a % of Market Value Trailing-Four Quarters is a measure of property turnover activity in the NCREIF Universe. This quarterly metric is a measure of activity in the market.

## **Credit Markets US Fixed Income:**

Metric: Spreads

The absolute level of spreads over treasuries and spread trends (widening / narrowing) are good indicators of credit risk in the fixed income markets. Spreads incorporate estimates of future default, but can also be driven by technical dislocations in the fixed income markets. Abnormally narrow spreads (relative to historical levels) indicate higher levels of valuation risk, wide spreads indicate lower levels of valuation risk and / or elevated default fears. Investment grade bond spreads are represented by the Barclays Capital US Corporate Investment Grade Index Intermediate Component. The high yield corporate bond spreads are represented by the Barclays Capital US Corporate High Yield Index.



## METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

## Measure of Equity Market Fear / Uncertainty

Metric: VIX – Measure of implied option volatility for U.S. equity markets

The VIX is a key measure of near-term volatility conveyed by implied volatility of S&P 500 index option prices. VIX increases with uncertainty and fear. Stocks and the VIX are negatively correlated. Volatility tends to spike when equity markets fall.

## **Measure of Monetary Policy**

Metric: Yield Curve Slope

We calculate the yield curve slope as the 10 year treasury yield minus the 1 year treasury yield. When the yield curve slope is zero or negative, this is a signal to pay attention. A negative yield curve slope signals lower rates in the future, caused by a contraction in economic activity. Recessions are typically preceded by an inverted (negatively sloped) yield curve. A very steep yield curve (2 or greater) indicates a large difference between shorter-term interest rates (the 1 year rate) and longer-term rates (the 10 year rate). This can signal expansion in economic activity in the future, or merely higher future interest rates.

#### **Measures of US Inflation Expectations**

Metrics: Breakeven Inflation and Inflation Adjusted Commodity Prices

Inflation is a very important indicator impacting all assets and financial instruments. Breakeven inflation is calculated as the 10 year nominal treasury yield minus the 10 year real yield on US TIPS (treasury inflation protected securities). Abnormally low long-term inflation expectations are indicative of deflationary fears. A rapid rise in breakeven inflation indicates an acceleration in inflationary expectations as market participants sell nominal treasuries and buy TIPs. If breakeven inflation continues to rise quarter over quarter, this is a signal of inflationary worries rising, which may cause Fed action and / or dollar decline.

Commodity price movement (above the rate of inflation) is an indication of anticipated inflation caused by real global economic activity putting pressure on resource prices. We calculate this metric by adjusted in the Dow Jones UBS Commodity Index (formerly Dow Jones AIG Commodity Index) by US CPI-U. While rising commodity prices will not necessarily translate to higher US inflation, higher US inflation will likely show up in higher commodity prices, particularly if world economic activity is robust.

These two measures of anticipated inflation can, and often are, conflicting.

percentage yield. We make no attempt to account for convexity.

### Measures of US Treasury Bond Interest Rate Risk

Metrics: 10-Year Treasury Forward-Looking Real Yield and 10-Year Treasury Duration

The expected annualized real yield of the 10 year U.S. Treasury Bond is a measure of valuation risk for U.S. Treasuries. A low real yield means investors will accept a low rate of expected return for the certainly of receiving their nominal cash flows. PCA estimates the expected annualized real yield by subtracting an estimate of expected 10 year inflation (produced by the Survey of Professional Forecasters as collected by the Federal Reserve Bank of Philadelphia), from the 10 year Treasury constant maturity interest rate. Duration for the 10-Year Treasury Bond is calculated based on the current yield and a price of 100. This is a measure of expected percentage movements in the price of the bond based on small movements in

## Definition of "extreme" metric readings

A metric reading is defined as "extreme" if the metric reading is in the top or bottom decile of its historical readings. These "extreme" reading should cause the reader to pay attention. These metrics have reverted toward their mean values in the past.





## **PCA Market Sentiment Indicator**

Explanation, Construction and Q&A

By:

Pension Consulting Alliance, Inc.

John Linder, CFA, CPA Neil Rue, CFA

PCA has created the PCA Market Sentiment Indicator (PMSI) to <u>complement</u> our valuation-focused PCA Investment Market Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a <u>risk-seeking trend</u> or a <u>risk-aversion trend</u>.

This paper explores:

- What is the PCA Market Sentiment Indicator (PMSI)?
- How do I read the indicator graph?
- How is the PCA Market Sentiment Indicator (PMSI) constructed?
- What do changes in the indicator mean?



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## PCA Market Sentiment Indicator

PCA has created a market sentiment indicator for monthly publication (the PMSI – see below) to complement PCA's Investment Market Risk Metrics.

PCA's Investment Market Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market corrections take place. The PMSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation based concerns. Once the PMSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, PCA believes the Risk Metrics and PMSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the PCA PMSI:

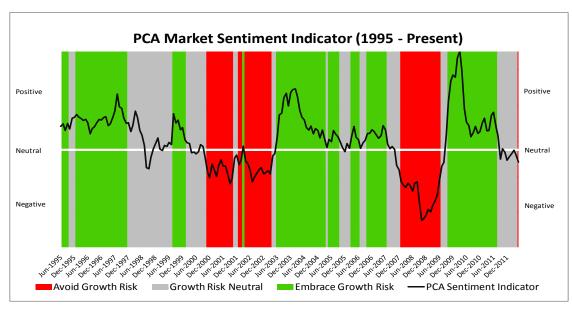
## What is the PCA Market Sentiment Indicator (PMSI)?

The PMSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The PMSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

## How do I read the PCA Market Sentiment Indicator (PMSI) graph?

Simply put, the PMSI is a color coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the PMSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the PMSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.





## **PCA Market Sentiment Indicator**

## How is the PCA Market Sentiment Indicator (PMSI) Constructed?

The PMSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

- 1. Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
- 2. Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight). The scale of this measure is adjusted to match that of the stock return momentum measure.

The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure. The color reading on the graph is determined as follows:

- 1. If both stock return momentum and bond spread momentum are positive = GREEN (positive)
- 2. If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
- 3. If both stock return momentum and bond spread momentum are negative = RED (negative)

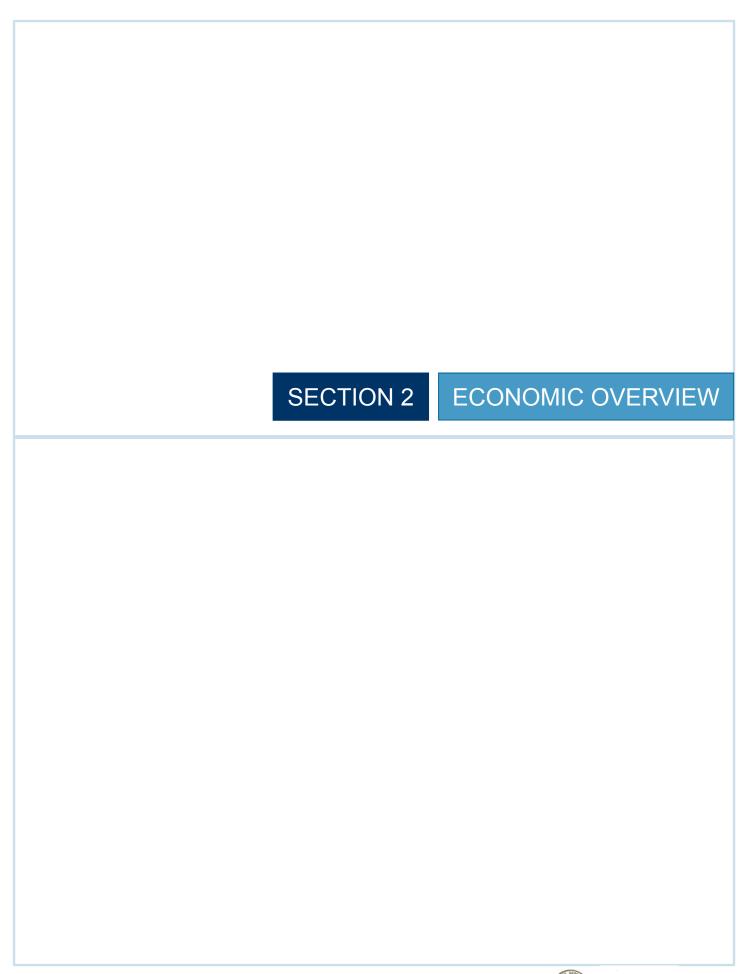
## What does the PCA Market Sentiment Indicator (PMSI) mean? Why might it be useful?

There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12 month period. The PMSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

"Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010 http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf

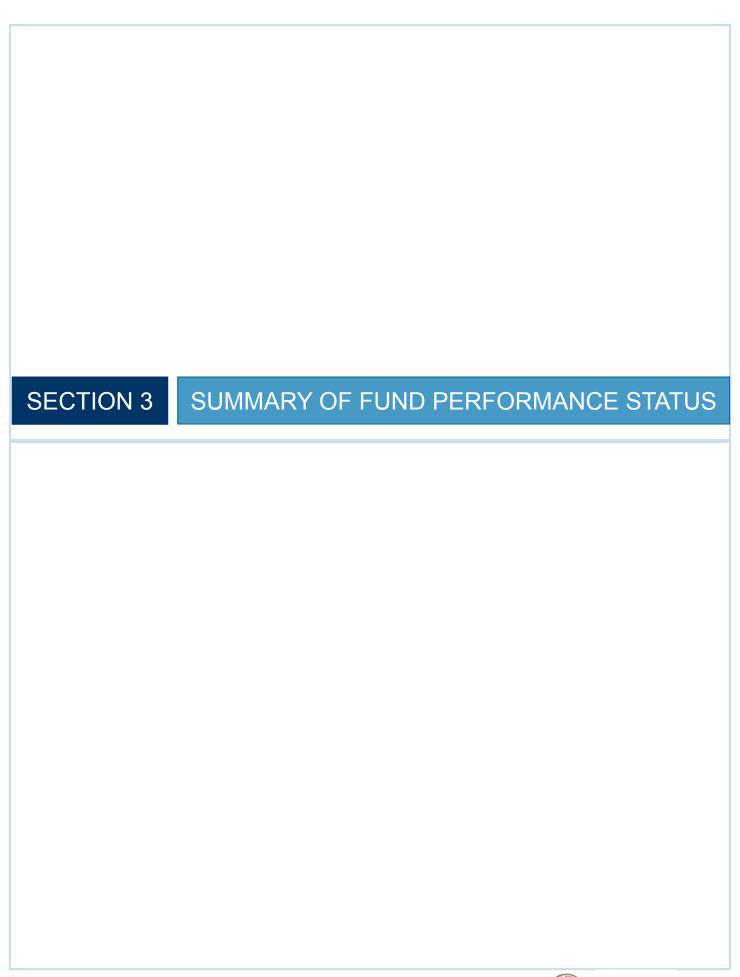


<sup>&</sup>lt;sup>1</sup>Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.





# To be provided under separate cover





Portfolios	Prior Quarter Status	Current Quarter Status
Actively Managed		
T. Rowe Price Balanced	Positive	Acceptable
Vanguard Inflation-Protected	Acceptable	Acceptable
MainStay Total Return Bond <b>NEW</b>	N/A	Positive
PIMCO Short-Term Fund	Positive	Positive
Vanguard Prime Money Market	Positive	Positive
Fidelity Advisor Invest. Grade Bond	Positive	Positive
Dodge & Cox International Stock	Positive	Positive
DFA US Large Cap Value	Positive	Acceptable
T. Rowe Price Instl Large Cap Growth	Positive	Acceptable
DFA US Small Cap Value	Positive	Positive
Vanguard Explorer	Positive	Positive
Passively Managed		
Vanguard 500 Index	Positive	Positive
Vanguard Total Stock Market	Positive	Positive
Vanguard Value Index	Positive	Positive
Vanguard Growth Index	Positive	Positive
Vanguard Mid-Cap Index	Positive	Positive
Vanguard Extended Market Index	Positive	Positive
Vanguard Small Cap Index	Positive	Positive
Vanguard Small Cap Value	Positive	Positive
Vanguard Small Cap Growth	Positive	Positive

- Current status is based on evaluation results from short-term (rolling 12-month) and medium-term (rolling 36-month) analysis.
- According to the Investment Status Schedule, the portfolio's overall "Current Quarter Status" equals the lowest status as achieved by one or more of the criteria during the quarter.



Portfolios	Prior Quarter Status	Current Quarter Status
Passively Managed (Continued)		
Vanguard REIT Index	Positive	Positive
Vanguard Total International Stock	Positive	Positive
Vanguard Total Bond Market	Positive	Positive
Vanguard Interm-Term Bond Index	Watch	Watch
Vanguard Short-Term Bond Index	Positive	Positive
Vanguard ST Infl-Protected Index	Positive	Positive

- Current status is based on evaluation results from short-term (rolling 12-month) and medium-term (rolling 36-month) analysis.
- According to the Investment Status Schedule, the portfolio's overall "Current Quarter Status" equals the lowest status as achieved by one or more of the criteria during the quarter.

SOMMAN OF FUND FERT ORMANCE STATUS				
Portfolios	Currently on Watch?	Qualifies for Watch?		
Actively Managed				
T. Rowe Price Balanced	NO	NO		
Vanguard Inflation Protected	NO	NO		
MainStay Total Return Bond NEW	NO	NO		
PIMCO Short-Term Fund	NO	NO		
Vanguard Prime Money Market	NO	NO		
Fidelity Advisor Invest. Grade Bond	NO	NO		
Dodge & Cox International Stock	NO	NO		
DFA US Large Cap Value	NO	NO		
T. Rowe Price Instl Large Cap Growth	NO	NO		
DFA US Small Cap Value	NO	NO		
Vanguard Explorer	NO	NO		
Passively Managed				
Vanguard 500 Index	NO	NO		
Vanguard Total Stock Market	NO	NO		
Vanguard Value Index	NO	NO		
Vanguard Growth Index	NO	NO		
Vanguard Mid-Cap Index	NO	NO		
Vanguard Extended Market Index	NO	NO		
Vanguard Small Cap Index	NO	NO		
Vanguard Small Cap Value	NO	NO		
Vanguard Small Cap Growth	NO	NO		

- Funds identified as "Currently on Watch" are those whose Watch status has been approved by the CollegeCounts Board.
- Funds indentified as "Qualifying for Watch" have not necessarily been approved as being on Watch by the CollegeCounts Board, but qualify for Watch according to the approved Monitoring Criteria (See Tab 4 for details).

Portfolios	Currently on Watch?	Qualifies for Watch?	
Passively Managed (continued)			
Vanguard REIT Index	NO	NO	
Vanguard Total International Stock	NO	NO	
Vanguard Total Bond Market	NO	NO	
Vanguard Interm-Term Bond Index	YES	NO	
Vanguard REIT Index	NO	NO	
Vanguard Short-Term Bond Index	NO	NO	
Vanguard ST Infl-Protected Index	NO	NO	

- Funds identified as "Currently on Watch" are those whose Watch status has been approved by the CollegeCounts Board.
- Funds indentified as "Qualifying for Watch" have not necessarily been approved as being on Watch by the CollegeCounts Board, but qualify for Watch according to the approved Monitoring Criteria (See Tab 4 for details).

# DIRECT PLAN: Summary of Watch Status

#### **Performance of Funds on Watch Status**

Funds on watch status	Board action date	Watch status start date		Excess perf since watch*
Vanguard Interm-term Bond Index	5/6/2014	4/1/2014	9	0.2%*

Annualized if applicable

<sup>\*</sup> Excess performance for passive funds measured in tracking error

Portfolios	Prior Quarter Status	Current Quarter Status
Actively Managed		
T. Rowe Price Balanced	Positive	Acceptable
Cohen & Steers Dividend Value	Acceptable	Acceptable
American Century Equity Growth	Positive	Acceptable
T. Rowe Price Instl Large Cap Gr	Positive	Acceptable
William Blair Small Cap Value	Acceptable	Positive
Northern Small Cap Value	Positive	Positive
Lord Abbett Developing Growth	Positive	Positive
T. Rowe Price Real Estate	Acceptable	Acceptable
Voya Global Real Estate	Watch	Watch
Credit Suisse Commodity Return	Acceptable	Acceptable
Neuberger Berman International Select	Monitor	Watch
DFA International Small Company	Positive	Positive
Lazard Emerging Markets	Positive	Positive
Fidelity Advisor Investment Grade	Positive	Positive
BlackRock Infl-Protected	Acceptable	Acceptable
Touchstone High Yield	Acceptable	Acceptable
Templeton International Bond	Positive	Positive
MainStay Total Return Bond NEW	N/A	Positive
PIMCO Short-Term Fund	Positive	Positive
BlackRock Cash Fund	Positive	Positive
American Cent. ST Dur. Infl. Prot. Bond	Acceptable	Acceptable

- Current status is based on evaluation results from short-term (rolling 12-month) and medium-term (rolling 36-month) analysis.
- According to the Investment Status Schedule, the portfolio's overall "Current Quarter Status" equals the lowest status as achieved by one or more of the criteria during the quarter.



Portfolios	Prior Quarter Status	Current Quarter Status	
Passively Managed			
Northern Stock Index	Positive	Positive	
Northern Mid-Cap Index	Positive	Positive	
Northern Small Cap Index	Positive	Positive	
Northern International Equity	Monitor	Monitor	
Northern Bond Index	Positive	Positive	

- Current status is based on evaluation results from short-term (rolling 12-month) and medium-term (rolling 36-month) analysis.
- According to the Investment Status Schedule, the portfolio's overall "Current Quarter Status" equals the lowest status as achieved by one or more of the criteria during the quarter.

Portfolios	Currently on Watch?	Qualifies for Watch?
Actively Managed		
T. Rowe Price Balanced	NO	NO
Cohen & Steers Dividend Value	NO	NO
American Century Equity Growth	NO	NO
T. Rowe Price Instl Large Cap Gr	NO	NO
William Blair Value Discovery	NO	NO
Northern Small Cap Value	NO	NO
Lord Abbett Developing Growth	NO	NO
T. Rowe Price Real Estate	NO	NO
Voya Global Real Estate	YES	Medium-Term
Credit Suisse Commodity Return	NO	NO
Neuberger Berman International Select	YES	NO
DFA International Small Company	NO	NO
Lazard Emerging Markets	NO	NO
Fidelity Advisor Investment Grade	NO	NO
BlackRock Infl-Protected	NO	NO
Touchstone High Yield	NO	NO
Templeton International Bond	NO	NO
MainStay Total Return Bond NEW	NO	NO
PIMCO Short-Term Fund	NO	NO
BlackRock Cash Fund	NO	NO
American Cent. ST Dur. Infl. Prot. Bond	NO	NO

- Funds identified as "Currently on Watch" are those whose Watch status has been approved by the CollegeCounts Board.
- Funds indentified as "Qualifying for Watch" have not necessarily been approved as being on Watch by the CollegeCounts Board, but qualify for Watch according to the approved Monitoring Criteria (See Tab 5 for details).

Portfolios	Currently on Watch?	Qualifies for Watch?
Passively Managed		
Northern Stock Index	NO	NO
Northern Mid-Cap Index	NO	NO
Northern Small Cap Index	NO	NO
Northern International Equity	NO	Medium-Term
Northern Bond Index	NO	NO

- Funds identified as "Currently on Watch" are those whose Watch status has been approved by the CollegeCounts Board.
- Funds indentified as "Qualifying for Watch" have not necessarily been approved as being on Watch by the CollegeCounts Board, but qualify for Watch according to the approved Monitoring Criteria (See Tab 5 for details).

# ADVISOR PLAN: Summary of Watch Status

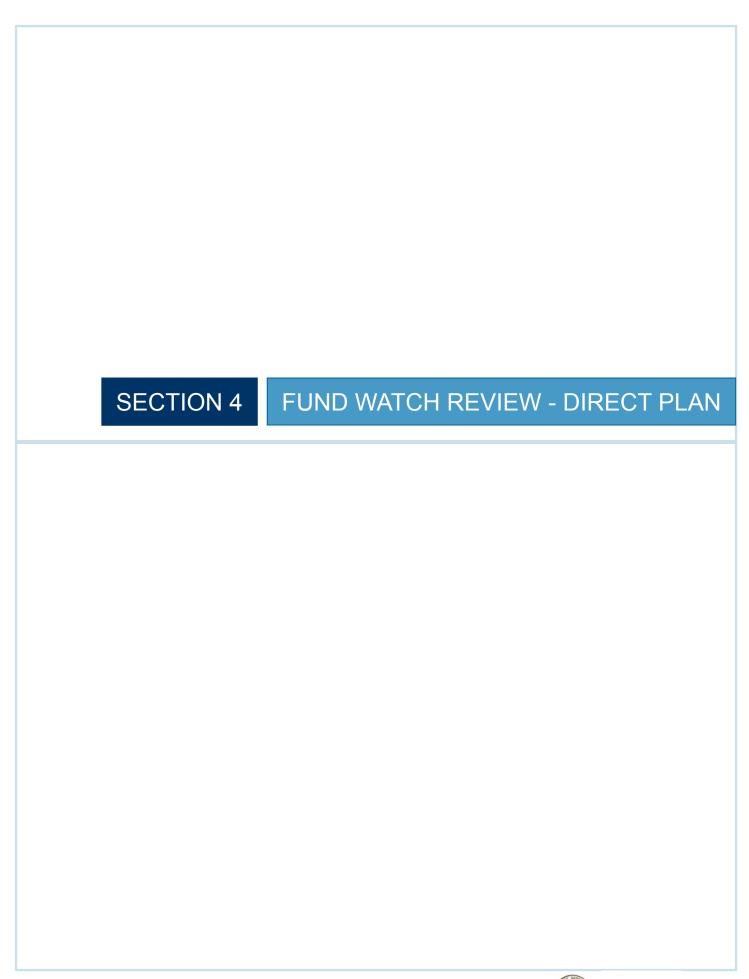
#### **Performance of Funds on Watch Status**

Advisor Plan

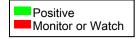
Funds on watch status	Board action date	Watch status start date	Months since watch began	Excess perf since watch
Voya Global Real Estate	2/13/2013	1/1/2013*	24	-1.6%
Neuberger Berman Intl. Select	11/5/2014	9/30/2014	3	3.7%

Annualized if applicable

<sup>\*</sup> Board took action based on performance data as of 12/31/2012.

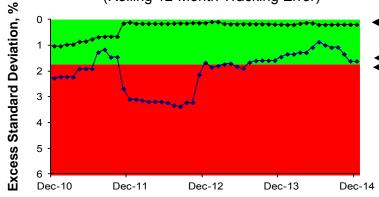


### VANGUARD TOTAL INTL STOCK INDEX FUND



#### Short-term

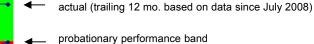
(Rolling 12-Month Tracking Error)



- actual (trailing 12 mo. based on data since July 2008)

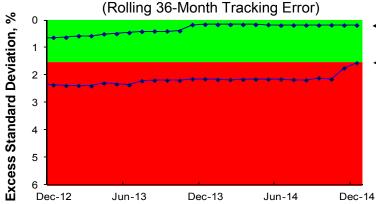
adjusted for fair market value estimates probationary performance band 1.75%

 Increased tracking error is due primarily to the Vanguard Total International Stock Index Fund's "Fair Market Value" adjustment procedures, which increases or decreases the Fund's actual closing price to compensate for pricing differences between international markets. This results in increased tracking error during periods of high volatility.



 Medium-term tracking error is within the Monitor range due to the Fund's Fair Market Value adjustment procedures (see note above)





Long-term criteria to take effect 3Q 2015

#### Annualized Performance Results (Net of management fees)

	1 Year	3 Year	5 Year	Inc. (8/2/2010)
Vanguard Total Intl Stock Index	-4.24	9.18	4.32	5.61
FTSE Global All Cap ex US	-3.12	9.81	5.21	6.43

Source: Morningstar Direct

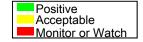
% of Total Program	3.7%
Individual Option	Yes
Fund 100	35%
Fund 80	28%
Fund 60	21%
Fund 40	11%
Fund 20	4%
Fund Fixed Income	0%

#### **Current Status**

**Positive** 

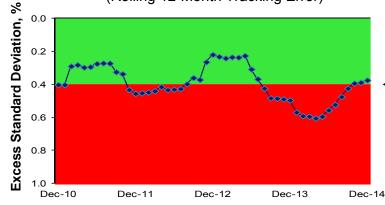


### VANGUARD INTERM-TERM BOND INDEX



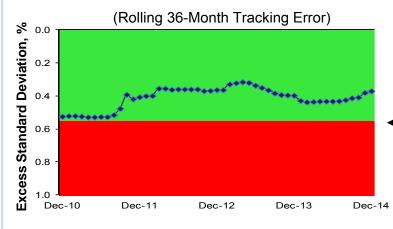
#### **Short-term**

(Rolling 12-Month Tracking Error)



- Short-term performance moved into the Positive range
- probationary performance band 0.40%

#### **Medium-term**



- Medium-term performance remains in the Positive range
- probationary performance band 0.55%

Long-term criteria to take effect 3Q 2015

#### **Annualized Performance Results (Net of management fees)**

	•			,
	1 Year	3 Year	5 Year	Inc. (8/2/2010)
Vanguard Interm-Term Bond Index	6.85	3.29	5.92	4.59
Barclays US 5-10yr Gov/Crdit Fl. Adj.	6.91	3.47	6.08	4.76

Source: Morningstar Direct

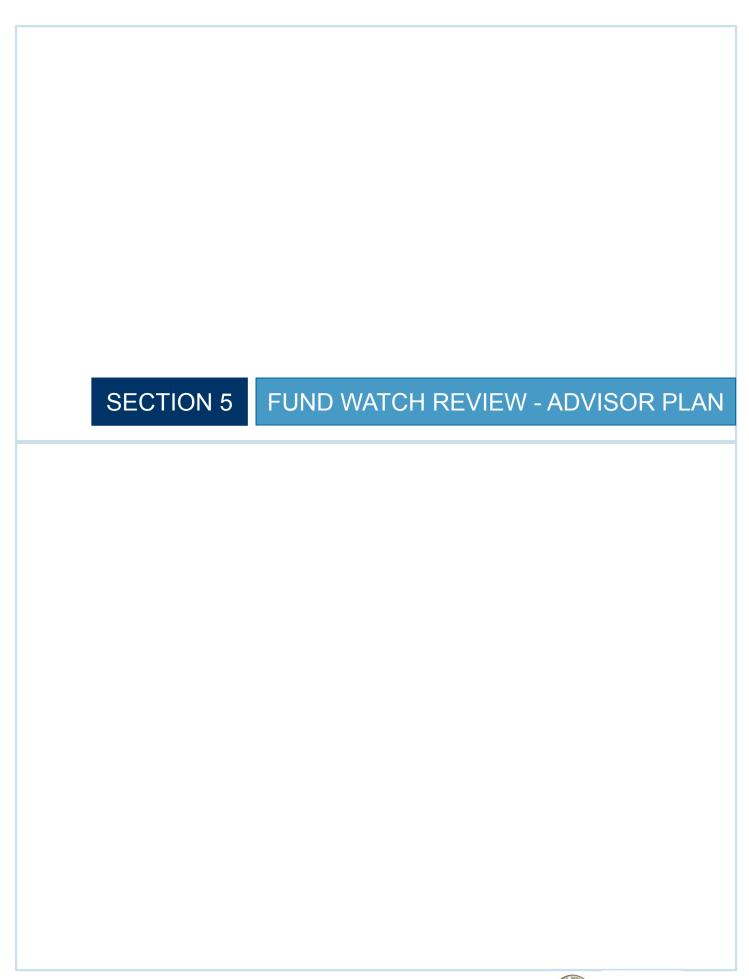
Peer Group = US OE Intermediate-Term Bond

% of Total Program	0.1%
Individual Option	Yes
Fund 100	0%
Fund 80	0%
Fund 60	0%
Fund 40	0%
Fund 20	0%
Fund Fixed Income	0%

#### **Current Status**

On Watch



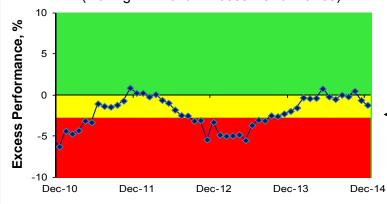


### VOYA GLOBAL REAL ESTATE FUND

# Positive Acceptable Monitor or Watch

#### **Short-term**

(Rolling 12-Month Excess Performance)

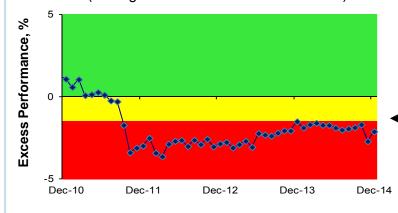


 Short-term performance moved into the Positive range during the period

probationary performance band
 -2.75%

#### Medium-term

(Rolling 36-Month Excess Performance)



 Medium-term performance remains in the Monitor range

 probationary performance band -1.50%

Long-term criteria to take effect 3Q 2017

#### **Annualized Performance Results (Net of management fees)**

	1 Year	3 Year	5 Year	Inc. (10/10/2012)
Voya Global Real Estate	13.96	14.15	10.17	10.86
S&P Developed Prop TR	15.19	16.28	12.53	12.05
Peer Rank (Percentile)	46	69	53	41

% of Total Program	2.1%
Individual Option	Yes
Fund 100	7%
Fund 80	5%
Fund 60	3%
Fund 40	1.5%
Fund 20	0%
Fund Fixed Income	0%

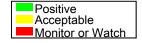
#### **Current Status**

On Watch

Source: Morningstar Direct

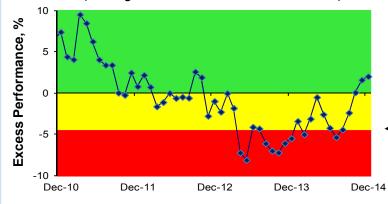
Peer Group = US OE Global Real Estate

### NEUBERGER BERMAN INTERNATIONAL SELECT FUND



#### **Short-term**

(Rolling 12-Month Excess Performance)

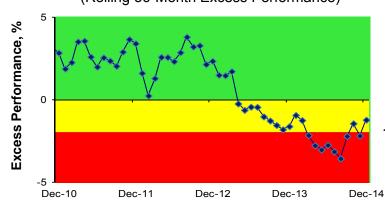


 Short-term performance moved into the Positive range

 probationary performance band -4.50%

#### Medium-term

(Rolling 36-Month Excess Performance)



 Medium-term performance moved into the Acceptable range

 probationary performance band -2.00%

Long-term criteria to take effect 3Q 2015

#### **Annualized Performance Results (Net of management fees)**

	1 Year	3 Year	5 Year	Inc. (8/2/2010)
Neub. Berm. Intl LC Instl	-2.90	9.82	6.22	7.01
MSCI EAFE NR USD	-4.90	11.06	5.33	7.30
Peer Rank (Percentile)	20	58	22	43

% of Total Program	6.3%
Individual Option	Yes
Fund 100	15%
Fund 80	12%
Fund 60	9%
Fund 40	6%
Fund 20	2%
Fund Fixed Income	0%

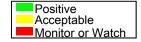
#### **Current Status**

On Watch

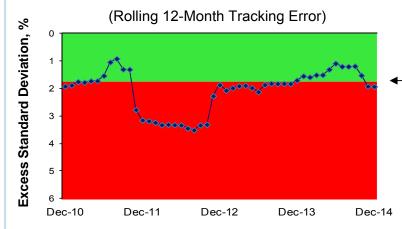
Source: Morningstar Direct

Peer Group = US OE Foreign Large Blend

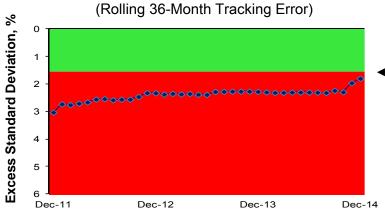
### NORTHERN INTL EQUITY INDEX FUND



#### **Short-term**



Medium-term



- probationary performance band

- Tracking error is due primarily to the Northern Institutional International Equity Index Fund's "Fair Market Value" adjustment procedures, which increases or decreases the Fund's actual closing price to compensate for pricing differences between international markets. This results in increased tracking error during periods of high volatility.
- probationary performance band 1.55%
- Medium-term tracking error is within the Monitor range due to the Fund's Fair Market Value adjustment procedures (see note above)

Long-term criteria to take effect 3Q 2015

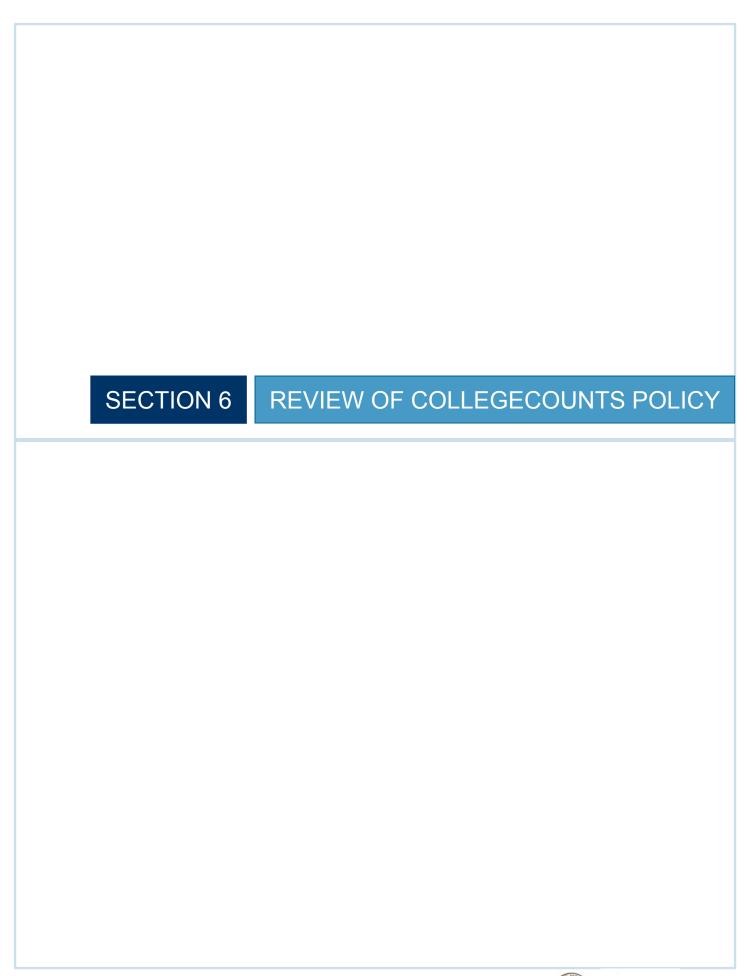
#### **Annualized Performance Results (Net of management fees)**

	1 Year	3 Year	5 Year	Inc. (8/2/2010)
Northern Intl. Equity Idx Fund	-5.79	10.82	5.06	6.88
MSCI EAFE NR USD	-4.90	11.06	5.33	7.30

4.2%
Yes
9%
8%
7%
3.5%
2%
0%

#### **Current Status**

**Monitor** 



# DIRECT PLAN: Review of Policy

#### **Direct Plan**

Target Portfolios	Benchmark
Fund 100	Composite
Fund 80	Composite
Fund 60	Composite
Fund 40	Composite
Fund 20	Composite
Fixed Income	Composite

Individual Portfolio	Benchmark
T. Rowe Price Balanced Fund	52% S&P 500, 13% MSCI EAFE
T. Nowe File Balanced Fund	35% BC US Agg Bond Index
Dodge & Cox International Stock Fund	MSCI EAFE NR USD
DFA US Large Cap Value Fund	Russell 1000 Value TR USD
T. Rowe Price Instl. Large Cap Growth Fund	Russell 1000 Growth TR USD
DFA US Small Cap Value Fund	Russell 2000 Value TR USD
Vanguard Explorer Fund	Russell 2000 Growth TR USD
Fidelity Advisors Investment Grade Bond Fund	BarCap US Agg Bond TR USD
MainStay Total Return Bond Fund	BarCap US Agg Bond TR USD
PIMCO Short-Term Fund	Citi Treasury Bill 3 Mon USD
Vanguard Prime Money Market Fund	Citi Treasury Bill 3 Mon USD
Vanguard 500 Index Fund	S&P 500 TR
Vanguard Total Stock Market Index Fund	CRSP US Total Market USD
Vanguard Value Index Fund	CRSP US Large Cap Value USD
Vanguard Growth Index Fund	CRSP US Large Cap Growth USD
Vanguard Mid-Cap Index Fund	CRSP US Mid Cap USD
Vanguard Extended Market Index Fund	S&P Completion PR USD
Vanguard Small Cap Index Fund	CRSP US Small Cap USD
Vanguard Small Cap Value Index Fund	CRSP US Small Cap Value USD
Vanguard Small Cap Growth Index Fund	CRSP US Small Cap Growth USD
Vanguard REIT Index Fund	MSCI US REIT GR USD
Vanguard Total Intl Stock Index Fund	FTSE Global All Cap ex US USD
Vanguard Total Bond Market	BarCap US Agg Float Adj TR USD
Vanguard Interm-Term Bond Index	BarCap US Govt/Credit 5-10 Yr TR USD
Vanguard Inflation Protected Securities	BarCap US Treasury US TIPS TR USD
Vanguard Short-Term Bond Index	BarCap US 1-5yr Govt/Credit Fladj TR USD
Vanguard Short-Term Inflation-protected Index	BarCap US Trsy TIPS 0-5yr TR USD

### DIRECT PLAN: Review of Policy

#### Performance Criteria for Placing an Individual Fund or Multi-Fund Asset Class Portfolio on Watch

#### **Actively Managed Portfolios**

Asset Class	1 <sup>st</sup> 1 – 12 Months (rolling 3 month periods)	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (> 60-months)
Domestic Equity	Fd return < bench return -2.0%	Fd return < bench return -2.75% for 6 consecutive months	Fd annlzd return bench annlzd return -1.5% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
International Equity	Fd return < bench return -3.0%	Fd return < bench return -4.5% for 6 consecutive months	Fd annlzd return bench annlzd return -2.0% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
Fixed Income	Fd return < bench return -1.0%	Fd return < bench return -0.75% for 6 consecutive months	Fd annlzd return < bench annlzd return -0.5% for 6 consecutive months	VRR < 0.98 for 6 consecutive months
Short-Term	Fd return < bench return -0.60%	Fd return < bench return -0.7% for 6 consecutive months	Fd annlzd return bench annlzd return -0.2% for 6 consecutive months	VRR < 0.99 for 6 consecutive months

#### **Passively Managed Portfolios**

Asset Class	1 <sup>st</sup> 1 – 12 Months (rolling 3 month periods)	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (rolling 60-month periods)
Domestic Equity – Large Cap	Fd return < bench return -0.2%	Tracking Error > 0.30% for 6 consecutive months	Tracking Error> 0.25% for 6 consecutive months	Fd annlzd return < bench annlzd return - 0.20% for 6 consecutive months
Domestic Equity – Small Cap	Fd return < bench return -0.2%	Tracking Error > 0.30% for 6 consecutive months	Tracking Error > 0.35% for 6 consecutive months	Fd annlzd return < bench annlzd return - 0.20% for 6 consecutive months
Real Estate Equity	Fd return < bench return -0.2%	Tracking Error > 0.30% for 6 consecutive months	Tracking Error > 0.60% for 6 consecutive months	Fd annlzd return < bench annlzd return - 0.20% for 6 consecutive months
International Equity	Fd return < bench return -0.6%	Tracking Error > 1.75% for 6 consecutive months	Tracking Error> 1.55% for 6 consecutive months	Fd annlzd return < bench annlzd return - 0.30% for 6 consecutive months
Fixed Income	Fd return < bench return -0.15%	Tracking Error > 0.40% for 6 consecutive months	Tracking Error> 0.55% for 6 consecutive months	Fd annlzd return < bench annlzd return - 0.20% for 6 consecutive months

- [1] Return discounts from a benchmark return based on 2/3rds of the typical tracking error estimates of the specified type of fund manager.
- [2] Annualized return is the average annual return of either the manager or its benchmark.
- [3] VRR Value Relative Ratio is calculated as: Manager Cumulative Return / Benchmark Cumulative Return.



### DIRECT PLAN: Review of Policy

#### **Investment Status Schedule**

Performance Category	Actively Managed Portfolios	Passively Managed Portfolios
Positive <sup>1</sup>	■Performance exceeds the benchmark.	■Performance exceeds the benchmark (first 1-12 month period), or ■Tracking error is within the allowable range (short, medium and long time periods).
Acceptable <sup>1</sup>	Performance meets or is under the benchmark and is within the allowable range.	■Performance does not exceed the benchmark but is within the allowable range (first 1-12 month period only).
Monitor <sup>2</sup>	■Performance is below allowable range but either i) for less than six consecutive months³, or ii) has a performance history of less than 36 months, or iii) the Board has not taken (or decided not to take) a formal action to place the asset class or individual fund portfolio on Watch even though performance has been below allowable range for six months or longer.	■Tracking error falls outside of the allowable range but either i) for less than six consecutive months, or ii) the Board has not voted to place the asset class or stand alone fund on Watch.
Watch <sup>2</sup>	Performance is below allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund on Watch.	Tracking error falls outside of the allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund portfolio on Watch.

<sup>&</sup>lt;sup>1</sup> For <u>each criteria</u> (or time-period) analyzed, a portfolio's status equals the most positive performance category as achieved during one or more of the months that comprise a given quarter. The portfolio's <u>overall</u> "Current Status" then equals the lowest status as achieved by one or more of the criteria during the quarter.

<sup>&</sup>lt;sup>2</sup> Funds may only be categorized as Monitor or Watch after performance has been monitored for 36 months unless unusual circumstances require immediate action.

<sup>&</sup>lt;sup>3</sup> The amount of time generally required before an investment is put on Watch.

# ADVISOR PLAN: Review of Policy

#### **Advisor Plan**

Target Portfolios	Benchmark
Fund 100	Composite
Fund 80	Composite
Fund 60	Composite
Fund 40	Composite
Fund 20	Composite
Fixed Income	Composite

Individual Portfolio	Benchmark
Northern Stock Index	S&P 500 TR
American Century Equity Growth Instl	S&P 500 TR
Cohen & Steers Dividend Value Instl	Russell 1000 Value TR USD
T. Rowe Price Instl Large Cap Growth	Russell 1000 Growth TR USD
Northern Mid Cap Index	S&P MidCap 400 TR
William Blair Small Cap Value I	Russell 2000 Value TR USD
Northern Small Cap Value	Russell 2000 Value TR USD
Northern Small Cap ldx	Russell 2000 TR USD
Lord Abbett Developing Growth I	Russell 2000 Growth TR USD
Credit Suisse Commodity Return Strategic Portf.	DJ UBS Commodity TR
Voya Global Real Estate Portfolio	S&P Development Property TR
Northern International Eq ldx	MSCI EAFE USD
Neuberger Berman Intl Select Instl	MSCI EAFE NR USD
Lazard Emerging Markets Equity Instl	MSCI EM USD
DFA International Small Cap Comp. Portfolio	MSCI World xUS Small Cap
T. Rowe Price Real Estate	Wilshire Real Estate Securities
T. Rowe Price Balanced	52% S&P 500, 13% MSCI EAFE 35% BC US Agg Bond Index
Northern Bond Index	BarCap US Agg Bond TR USD
American Century Short Duration Infl-protection Bond	Barclays US 1-5yr TIPS USD
Fidelity Advisor Investment Grade Bond Fund	BarCap US Agg Bond TR USD
MainStay Total Return Bond Fund	BarCap US Agg Bond TR USD
BlackRock Inflation Protected Bond Instl	BarCap Gbl Infl Linked US TIPS TR USD
Templeton International Bond Fund	Citi WGBI NonUSD USD
Touchstone High Yield Fund	BofAML US HY Cash Pay TR
PIMCO Short-Term Instl	Citi Treasury Bill 3 Mon USD
Blackrock Cash Funds	Citi Treasury Bill 3 Mon USD

### ADVISOR PLAN: Review of Policy

#### Performance Criteria for Placing an Individual Fund or Multi-Fund Asset Class Portfolio on Watch

#### **Actively Managed Portfolios**

Asset Class	1 <sup>st</sup> 1 – 12 Months (rolling 3 month periods)	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (> 60-months)
Domestic Equity	Fd return < bench return -2.0%	Fd return < bench return -2.75% for 6 consecutive months	Fd annlzd return < bench annlzd return - 1.5% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
International Equity	Fd return < bench return -3.0%	Fd return < bench return -4.5% for 6 consecutive months	Fd annizd return bench annizd return - 2.0% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
Fixed Income	Fd return < bench return -1.0%	Fd return < bench return -0.75% for 6 consecutive months	Fd annizd return bench annizd return - 0.5% for 6 consecutive months	VRR < 0.98 for 6 consecutive months
Short-Term	Fd return < bench return -0.60%	Fd return < bench return -0.7% for 6 consecutive months	Fd annizd return < bench annizd return - 0.2% for 6 consecutive months	VRR < 0.99 for 6 consecutive months

#### **Passively Managed Portfolios**

Asset Class	1 <sup>st</sup> 1 – 12 Months (rolling 3 month periods)	Short-Term (rolling 12-month periods)	Medium-term (rolling 36-month periods)	Long-term (rolling 60-month periods)
Domestic Equity	Fd return < bench return -0.2%	Tracking Error > 0.30% for 6 consecutive months	Tracking Error> 0.25% for 6 consecutive months	Fd annlzd return bench annlzd return -0.20% for 6 consecutive months
International Equity	Fd return < bench return -0.6%	Tracking Error > 1.75% for 6 consecutive months	Tracking Error> 1.55% for 6 consecutive months	Fd annlzd return bench annlzd return -0.30% for 6 consecutive months
Fixed Income	Fd return < bench return -0.15%	Tracking Error > 0.40% for 6 consecutive months	Tracking Error> 0.55% for 6 consecutive months	Fd annlzd return bench annlzd return -0.20% for 6 consecutive months

- [1] Return discounts from a benchmark return based on 2/3rds of the typical tracking error estimates of the specified type of fund manager.
- [2] Annualized return is the average annual return of either the manager or its benchmark.
- [3] VRR Value Relative Ratio is calculated as: Manager Cumulative Return / Benchmark Cumulative Return.

### ADVISOR PLAN: Review of Policy

#### **Investment Status Schedule**

Performance Category	Actively Managed Portfolios	Passively Managed Portfolios
Positive <sup>1</sup>	■Performance exceeds the benchmark.	<ul> <li>Performance exceeds the benchmark (first 1-12 month period), or</li> <li>Tracking error is within the allowable range (short, medium and long time periods).</li> </ul>
Acceptable <sup>1</sup>	Performance meets or is under the benchmark and is within the allowable range.	■Performance does not exceed the benchmark but is within the allowable range (first 1-12 month period only).
<b>M</b> onitor <sup>2</sup>	■Performance is below allowable range but either i) for less than six consecutive months³, or ii) has a performance history of less than 36 months, or iii) the Board has not taken (or decided not to take) a formal action to place the asset class or individual fund portfolio on Watch even though performance has been below allowable range for six months or longer.	■Tracking error falls outside of the allowable range but either i) for less than six consecutive months, or ii) the Board has not voted to place the asset class or stand alone fund on Watch.
Watch <sup>2</sup>	■Performance is below allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund on Watch.	■Tracking error falls outside of the allowable range for more than six consecutive months and the Board has formally voted to place the asset class or individual fund portfolio on Watch.

<sup>&</sup>lt;sup>1</sup> For <u>each criteria</u> (or time-period) analyzed, a portfolio's status equals the most positive performance category as achieved during one or more of the months that comprise a given quarter. The portfolio's <u>overall</u> "Current Status" then equals the lowest status as achieved by one or more of the criteria during the quarter.

<sup>&</sup>lt;sup>2</sup> Funds may only be categorized as Monitor or Watch after performance has been monitored for 36 months unless unusual circumstances require immediate action.

<sup>&</sup>lt;sup>3</sup> The amount of time generally required before an investment is put on Watch.

### **GLOSSARY**

**Annualized Return** – The average annual return of either the manager or its benchmark.

**Excess Performance** – Manager returns in excess of the benchmark returns.

**Standard Deviation** – A measure of dispersion of a set of data from its mean.

Excess Standard Deviation – A measure of the volatility of the average annual difference between the manager's return and the benchmark's return, same as tracking error.

**VRR – Value Relative Ratio** – Calculated as: Manager Cumulative Return / Benchmark Cumulative Return.

#### **Disclosures**

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